Mikhaylov, V.P.

BRAUN, A.A., MIKHAYLOV, V.P. (Kirovskiy pr., d.69/71 kv.36, Leningrad)

A.A. Zavarzin's and N.G. Khlopin's theories of tissue evolution and the problem of their creative synthesis. Arkh.anat.gist. i embr. 35 no.3:8-18 My-Je '58 (MIRA 11:7)

1. Meditsinskiy institut, kafedra gistologii, g. Frunze (for Braun).
(HISTOLOGY,
tissue evolution, theories (Rus))

KHARAUZOV, N.A., prof., glavnyy red.; MIKHAYLOV, V.P., prof., zamestitel' glavnogo red.; BIRYUKOV, D.A., prof., otv.red.; AVETIKYAN, B.G., doktor biol.nauk, red.; ANICHKOV, N.N., akademik, red.; ANICHKOV, S.V., prof., red.; ARBUZOV, S.Ya., prof., red.; VESELKIN, P.N., prof., red.; VOYNO-YASENETSKIY, M.V., prof., red.; DANILOV, I.V., kand.biol.nauk, red.; ZHABOTINSKIY, Yu.M., prof., red.; ZHINKIN, L.N., prof., red.; IL'IN, V.S., red.; IOFFE, V.I., prof., red.; KARASIK, V.M., prof., red.; KUPALOV, P.S., prof., red.; MANINA, A.A., kand.med.nauk, red.; NEYFAKH, S.A., doktor biol.nauk, red.; RIKKL', A.V., prof., red.; SVETLOV, P.G., prof., red.; SMORODINTSEV, A.A., prof., red.; CHISTOVICH, G.N., doktor med.nauk, red.; BESEDIN, I.K., tekhn. red.

[Yearbook of the Institute of Experimental Medicine of the Academy of Medical Sciences of the U.S.S.R. for 1958] Ezhegodnik za 1958 god. Leningrad, 1959. 538 p. (MIRA 14:1)

1. Akademiya meditsinskikh nauk SSSR, Moscow. Institut eksperimental'noy meditsiny. 2. Chleny-korrespondenty Akademii meditsinskikh nauk SSSR (for Biryukov, Veselkin, Il'in, Ioffe, Karasik, Svetlov, Smorodintsev). 3. Deystvitel'nyye chleny Akademii meditsinskikh nauk SSSR (for Anichkov, S.V., Kupalov).

(MEDICINE, EXPERIMENTAL)

MIKHAYLOV, V.P. (Leningrad, 22, Kirovskiy prosp., d.69/71, kv.36);
YAROSLAVTSEVA, K.M.

Posttraumatic regeneration of the uterine epithelium in the rabbit in radiation sickness. Arkh.anat.gist.i embr. 37 no.8:59-70 Ag '59. (MIRA 12:11)

1. Morfologicheskaya laboratoriya (zav. - prof.V.P.Mikhaylov) otdela radiobiologii (zav. - prof.S.Ya.Arbuzov) Instituta eksperimental'noy meditsiny AMN SSSR. Adres Yaroslavtseva: Leningrad, 22, Kirovskiy prosp., d.69/71, Institut eksperimental'noy meditsiny AMN SSSR. Morfologicheskaya laboratoriya.
(RADIATION INJURY exper)
(UTERUS physiol)
(REGENERATION radiation eff)

BIRYUKOV, Dmitriy Andreyevich; MIKHAYLOV, V.P., red.; RULEVA, M.S., tekhn.red.

[Ecological physiology of the nervous activity; some problems on the biological principles of the theory of medicine] Ekologicheskaia fiziologiia nervnoi deiatel'nosti; nekotorye voprosy biologicheskikh osnov teorii meditsiny. Leningrad, Gos.izd-vo med.lit-ry Medgiz, Leningr.otd., 1960. 142 p. (MIRA 13:12)

(NERVOUS SYSTEM)

BIRYUKOV, D.A., prof., otv. red.; KHARAUZOV, N.A., prof., glav. red.; MIKHAYLOV, V.P., prof., zam. glav. red.; ABDULLIN, G.Z., red.; YALIZAROVA, N.A., tekhn. red.

[Yearbook of the Institute of Experimental Medicine]Ezhegodnik. Leningrad. Vol.5.[For 1959]Za 1959 god. 1960. 577 p. (Its: Trudy) (MIRA 16:3)

1. Akademiya meditsinskikh nauk SSSR, Moscow. Institut eksperimental'noy meditsiny. 2. Chlen-korrespondent Akademii meditsinskikh nauk SSSR (for Biryukov).
(MEDICINE, EXPERIMENTAL--YEARBOOKS)

MIKHAYLOV, V.P., prof.; TEREKHOVA, A.A., prof.

Secondary sutures on the granulation surface of 2d and 3d degree perineal incisions in labor. Akush.i gin. no.6:62-66 '60. (MIRA 14:1)

1. Iz Moskovskogo oblastnogo nauchno-issledovatel'skogo instituta akusherstva i ginekologii (dir. - zasluzhennyy vrach RSFSR O.D. Maupanova, nauchnyy rukovoditel' - prof. V.P. Mikhaylov).

(PERINEUM--SURGERY)

MIKHAYLOV, V.; BOZDUGANOV, A.

Treatment of cancer of the external female genitalia with Co^{60}. Vop. onk. 6 no. 9:79-82 S '60. (MIRA 14:1)

(GENERATIVE ORGANS, FEMALE—CANCER)
(COBALT—ISOTOPES)

MIKHAYLOV, V.P.

Early diagnosis and prevention of malignant neoplasms of the female genitalia is an urgent task of obstetrician-gynecologists and gynecologist-oncologists. Akush. i gin. 36 no.3:3-4 My-Je '60.
(MIRA 13:12)

(GENERATIVE ORGANS, FEMALE—CANCER)

MIKHAYLOV, V.P.; TEREKHOVA, A.A.

Vishnevskii method of local infiltration anesthesia in obstetrical and gynecological operations. Akush.i gin. 36 no.4:43-53 Jl-Ag '60. (MIRA 13:12)
(LOCAL ANESTHESIA) (ANESTHESIA IN OBSTETRICS)
(GENITOURINARY ORGANS—SURGERY)

MIKHAYLOV, V. P., prof.; TEREKHOVA, A. A., prof.; GEVORKYAN, G. G., nauchnyy sotrudnik

Intraepithelial cancer of the cervix uteri (morphology, clinical aspects, treatment). Akush. i gin. no.3:89-95 '61. (MIRA 14:12)

1. Iz Moskovskogo oblastnogo nauchno-issledovatel'skogo instituta akusherstva i ginekologii (dir. - zasluzhennyy vrach O. D. Matspanova, nauchnyy rukoviditel' - prof. V. P. Mikhaylov)

(UTERUS--CANCER)

MIKHAYLOV, V.P.

Development of radiobiological research in the Institute of Experimental Medicine of the Academy of Medical Sciences of the U.S.S.R. Vest. AMN SSSR 16 no.11:21-25 '61. (MIRA 15:2)
(RADIOBIOLOGICAL RESEARCH)

KNORRE, A.G. (Leningrad); MIKHAYLOV, V.P. (Leningrad)

Principle of methorisis of V.M. Shimkevich and its significance for histology. Arkh. anat. gist. i embr. 40 no. 1:3-18 Ja '61. (MIRA 14:2)

1. Leningrad, Litovskaya, 2. Pediatricheskiy institut, Kafedra gistologii i embriologii (for Knorre). 3. Leningrad, P-22, Kirovskiy pr., 69/71, Laboratoriya eksperimental'noy gistologii Instituta eksperimental'noy meditsiny Akademii meditsinskikh nauk SSSR (for Mikhaylov).

(HISTOLOGY) (EMBRYOLOGY)

MIKHAYLOV, V. P., prof.; TEREKHOVA, A. A., prof.; GEVORKYAN, G. G., nauchnyy sotrudnik

Carcinoma in situ and carcinoids as preneoplastic stages in the histogenesis of cancer. Akush. i gin. 38 no.3:11-21 My-Je '62. (MIRA 15:6)

(UTERUS—CANCER)

MIKHAYLOV, V.P. (Leningrad , P-22, Kirovskiy pr., 69/71, kv.36)

Some problems in radiation histology. Arkh. anat., gist. i embr. 42 no.4:3-24 Ap '62. (MIRA 15:6)

1. Laboratory of Experimental Histology, Institute of Experimental Medicine, Leningrad.

(RADIOBIOLOGY)

(HISTOLOGY, PATHOLOGICAL)

ZHDANOV, Dmitriy Arkad'yevich, doktor med. nauk, prof., red.; ZAZYBIN, Nikolay Ivanovich, zasl. deyatel' nauki, doktor med. nauk, prof., red.; KAS'YANENKO, Vladimir Grigor'yevich, doktor nauk, prof., akademi, red.; MIKHAYLOV, Vladimir Pavlovich, doktor biol. nauk, prof., red.; SINEL'NIKOV, Rafail Davidovich, doktor med.nauk, prof., red.; TORSKAYA, Iya Vladimirovna, kand. biol. nauk, st. nauchn. sotr., red.; SHCHELKUNOV, Serafim Ivanovich, doktor nauk, prof., red.

[Transactions of the Sixth All-Union Congress of Anatomists, Histologists and Embryologists] Trudy Vsesoyuznogo s"ezda anatomov, gistologov i embriologov. Khar'kov, M-vo zdravookhraneniia SSSR. Vol.2. 1961. 791 p. (MIRA 16:12)

1. Vsesoyuznyy s"yezd anatomov, gistologov i embriologov. 6th, Kiev, 1958. 2. Chlen-korrespondent AMN SSSR (for Shchelkunov, Zhdanov, Zazybin). 3. Akademiya nauk Ukr.SSR i Institut zoologii AN UkrSSR (for Kas'yanenko).

(Continued on next card)

ZHDANOV, Dmitriy Arkad'yevich --- (continued). Card 2.

4. Institut eksperimental'noy meditsiny AMN SSSR (for Mikhaylov). 5. Kafedra normativnoy anatomii Khar'kovskogo meditsinskogo instituta (for Sinel'nikov). 6. Institut fiziologii im. A.A.Bogomol'tsa AN Ukr.SSR (for Torskaya).

(ANATOMY--CONGRESSES)
(HISTOLOGY--CONGRESSES)
(EMBRYOLOGY--CONGRESSES)

MIKHAYLOV, V.P. (Leningrad, P-22, Kirovskiy prospekt, 69/71, kv.36)

History of histology in the Kazan University in the second half of the 19th century. Arkh. anat., gist. i embr. 47 no.12:110-119 D '64. (MIRA 18:4)

MIKHAYLOV, V.P. (Leningrad)

Reparative regeneration of the tissues following the action of ionizing radiation. Arkh. anat., gist. i embr. 48 no.2:3-16 F '65. (MIRA 18:8)

1. Laboratory of Experimental Histology, Institute of Experimental Medicine Academy of Medical Sciences, U.S.S.R., Leningrad.

MIKHAYLOV, V.P.

Behavior of certain classes of polynomials at infinity. Dokl. AN SSSR 164 no.3:499-502 S '65. (MIRA 18:9)

1. Matematicheskiy institut im. V.A. Steklova AN SSSR. Submitted February 11, 1965.

SVETIKOVA, K.M. (Leningrad, L-95, Prospekt Stachek, 16, kv. 72)

Reparative regeneration of skin and intestine epithelium at the site of their anal junction in acute radiation sickness. Arkh. anat., gist. i embr. 45 no. 10:51-58 O '63. (MIRA 17:9)

1. Laboratoriya eksperimental'noy gistologii (zav. - prof. V.P. Mikhaylov) Instituta eksperimental'noy meditsiny AMN SSSR, Leningrad.

MIKHAYLOV, V.P.

DMITRIYEVA, Ye.V.

Posttraumatic regeneration of the mucous membrane of the small intestine in acute radiation injury. Arkh. anat., gist. i embr. 42 no.4:43-52 Ap '62. (MIRA 15:6)

1. Laboratoriya eksperimental'noy gistologii (zav. - prof. V.P. Mikhaylov) Instituta eksperimental'noy meditsiny AMN SSSR. Adres avtora: Leningrad, P-22, Kirovskiy pr., 69/71. Laboratoriya eksperimental'noy gistologii Instituta eksperimental'noy meditsiny AMN SSSR.

(RADIATION SICKNESS) (INTESTINES)
(REGENERATION (BIOLOGY))

MiKhaylov, V.P.

SHTERN, I.A., prof.; KOROLEVA, A.M., kand.med.nauk; PAVLOVA, L.S., kand.med.nauk

Immunological and biochemical data on the prevention and treatment of erythroblastosis fetalis [with summary in English]. Akush. i gin. 35 no.1:10-18 Ja-F '59. (MIRA 12:2)

1. Iz Moskovskogo oblastnogo nauchno-issledovatel'skogo instituta akusherstva i ginekologii (dir. - zasluzhennyy vrach RSFSR O.D. Matspanova, nauchnyy rukovoditel' - prof. V.P. Mikhaylov).
(ERYTHROBLASTOSIS, FETAL,
prev. & ther., immunol. & biochem. aspects (Rus))

MIKHAYLOV, V.P.

MYASNIKOV, N.N.

The course of pregnancy, labor, and the postnatal period in conjunction with leukemia. Probl. gemat. i perel. krovi 3 no.6:55-56 N-D '58 (MIRA 12:7)

1. Iz moskovskogo oblastnogo nauchno-issledovatel'skogo instituta akusherstva i ginekologii (dir. - zasluzhennyy vrach RSFSR O.D. Matspanova, nauchnyy rukovoditel' - prof. V. P. Mikhaylov).
(LEUKEMIA) (PREGNANCY, COMPLICATIONS OF)

Mikhaylov V.P.

GEVORKYAN, G.G.

Some pathoanatomical data on thromboembolism in obstetrics and gynecology. Akush. i gin. 33 no.5:78-88 S-O '57. (MIRA 12:5)

1. Iz patologoanatomicheskogo otdeleniya Moskovskogo oblastnogo nauchno-issledovatel'skogo instituta akusherstva i ginekologii (dir. O.D.Matspanova, nauchnyy rukovoditel' - prof. V.P. Mikhaylov).

(GYNECOLOGICAL DISEASES, compl.
thromboembolism, autopsy findings)
(LABOR, compl.
same)
(THROMBOEMBOLISM, etiol. a pathol.
in labor & gyn. dis., autopsy findings)

NIKIFOROVA, Ye.N.

Mitotic activity of the tissues of the breast following a trauma in noncastrated and castrated rats. Biul. eksp. biol. i med. 55 /i.e. 56/ no.10:89-92 O'63 (MIRA 17:8)

1. Iz laboratorii eksperimental'noy gistologii (zav. - prof. V.P. Mikhaylov) Instituta eksperimental'noy meditsiny AMN SSSR, Leningrad. Predstavlena deystvitel'nym chlenom AMN SSSR D.A. Biryukovym.

MIKHAYLOV, V. P. Cand Phys-Math Sci -- (diss) "On Goursat's problem for the system of differential equations with two (unknown) variables." Mos, 1957. (Cover) 4 pp (Mos State Univ im M. V. Lomonosov), 100 copies (KL, 43-57, 86)

MIKHAYLOV, V.P.

AUTHOR: Mikhaylov, V.P. 20-3-7/59

TITLE: On the Analytical Solution of the Goursat (Gursa) Problem for a System of Differential Equations (Ob analiticheskom reshenii zadachi Gursa dlya sistemy differentsial' nykh uravneniy)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 115, Nr 3, pp. 450-453 (USSR)

ABSTRACT: The present report examines the following problem: One may find the - in a certain domain $|x| < r_0$ $|t| < r_0$ - analytical solution $u_1(x, t)$ ...... $u_n(x,t)$ of the system of differential equations $F_i(x,t,u_1,\dots,u_n, \partial u_1/\partial x, \dots \partial u_n/\partial t)$, $i=1,2,\dots n$, so that $u_i(x,t)|_{l_i} = 0$, $i = 1, 2, \dots, n$, (l_i - the straight line $x = \mu_i t$) applies. First $F_i(x,t,u_k, \partial u_k/\partial x, \partial u_k/\partial t)$ is developed into a Taylor(Teylor) series with respect to $\partial u_k/\partial x$ and $\partial u_k/\partial t$ in the environment of $(\partial u_k/\partial x)_0$ and $(\partial u_k/\partial t)_0$. Then the following is obtained: $\frac{\partial u_k}{\partial t} = \sum_{j=1}^{n} b_{kj} \frac{\partial u_j}{\partial x} + \Phi_k(x,t,\dots, \frac{\partial u_n}{\partial t})$, $k=1,2,\dots n$

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20-3-7/59

On the Analytical Solution of the Goursat (Gursa) Problem for a System of Differential Equations

$$\| b_{ij} \| = \left\| \frac{\partial F_i}{\partial(\partial u_s/\partial t)} \right\|^{-1} \left\| \frac{\partial F_i}{\partial(\partial u_s/\partial x)} \right\| ; \quad \frac{\partial \Phi_i}{\partial(\partial u_s/\partial t)}\Big|_0 = \frac{\partial \Phi_i}{\partial(\partial u_s/\partial x)}\Big|_0 = 0$$

When the roots $\lambda_1, \ldots \lambda_n$ of the equation $\det(\| b_{ij} \| - \lambda E) = 0$ are real, theorem 1 is obtained: In order that the initially given regular Goursat (Gursa) problem may have a unique solution in the class of analytical functions, it is necessary and sufficient that the point $\mu = (\mu_1, \ldots, \mu_n)$ in the n-dimensional space of the angle coefficients of the straight line $u_i(x,t)\big|_{l_i}$, $i=1,2,\ldots n$, (where l_i is the straight line $x = \mu_i t$) lies on one of the infinitely many algebraic surfaces $\Delta_k^i(\mu_1, \ldots, \mu_n) = 0$, $k=0,1,\ldots \ldots m_0$, $m_0 > 1$. These algebraic surfaces are completely determined by the numbers b_{ij}, $i, j, = 1, 2, \ldots, n$. Then two theorems are given for the case that some roots of the equation

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20-5-8/54

AUTHOR: MIKHAYLOV, V.P. (Moscow)

TITLE: On Nonanalytic Solutions of the Coursat Problem for Systems of Differential Equations With Two Independent Variables (O neanaliticheskikh resheniyakh zadachi Gursa dlya sistemy differentsial'nykh uravneniy s dvumya nezavisimymi peremennymi)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol.117, Nr 5, pp.759-762 (USSR)

ABSTRACT: The author considers the following problem: In the whole x,t-plane (or in the neighborhood of zero) the solutions of the system of equations

$$(1) \qquad \frac{\partial u_i}{\partial t} = \sum b_{ij} \frac{\partial u_j}{\partial x} + F_i(x,t) \qquad i = 1,\dots,n$$

are to be determined which satisfy the conditions

$$(2) \qquad u_i(l_i) = \varphi_i(t) \quad ; \quad l_i \text{ is the straight line } x = \mu_i t \ ;$$

$i = 1,\dots,n$; $-\infty < t < \infty$. Here b_{ij}, μ_i are constants, $F_i(x,t)$, $\varphi_i(t)$ are everywhere continuously differentiable. The $F_i(x,t)$ do not increase quicker for $|x|+|t| \to \infty$ and $\varphi_i(t)$ for $|t| \to \infty$ than powers of $|x|+|t|$ and of $|t|$ respectively. The system is

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On Nonanalytic Solutions of the Goursat Problem for Systems of Differential Equations With Two Independent Variables 20-5-8/54

assumed to be hyperbolic. The problem (1) - (2) is denoted to be correct if 1.) there exists a unique continuously differentiable solution for arbitrary sufficiently smooth $\varphi_i(t)$ and if 2.) to each $A' > 0$ there exist such $a > 0$, $A > 0$ that for a sufficiently small variation of the $\varphi_i(t)$ and their derivatives on the intervals $[-A, -a]$, $[a, A]$ the solution varies suffiently few in $x^2 + t^2 \leq A'^2$.
The author investigates the question when (1) - (2) is correct in the above sense. For the homogeneous problem ($F_i(x,t) \equiv 0$) corresponding to the problem (1) - (2) there are formulated in 3 theorems without proof different conditions for correctness and incorrectness. For sufficiently slowly increasing $F_i(x,t)$ these conditions are maintained in the inhomogeneous case too. 1 Soviet and 1 foreign references are quoted.

ASSOCIATION: State University imeni M.V.Lomonosov, Moscow (Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova)
PRESENTED: By I.G. Petrovskiy, Academician, 19 June 1957
SUBMITTED: 19 June 1957
AVAILABLE: Library of Congress

Card 2/2

AUTHOR: Mikhaylov, V.P. (Moscow) SOV/39-46-3-3/5

TITLE: On the Analytic Solution of the Problem of Goursat for a System of Partial Differential Equations (Ob analiticheskom reshenii zadachi Gursa dlya sistemy differentsial'nykh uravneniy s chastnymi proizvodnymi)

PERIODICAL: Matematicheskiy sbornik, 1958, Vol 46, Nr 3, pp 315-342 (USSR)

ABSTRACT: The author seeks that solution $u_1(x,t),\dots,u_n(x,t)$ of the system

(1) $F_i(x,t,u_1,\dots,u_n,p_1,\dots,p_n,q_1,\dots,q_n) = 0,\quad p_i = \frac{\partial u_i}{\partial x},\ q_i = \frac{\partial u_i}{\partial t}$

for which

(2) $u_i(x,t)\Big|_{l_i} = 0,$

where l_i denotes the straight line $x = \mu_i t$.

The author develops the functions $F_i(x,t,u_r,p_r,q_r)$ in the neighborhood of the point $(0,0,\dots,0,(p_1)_o,\dots(q_n)_o)$ in Taylor series with respect to $p_r-(p_r)_o$, $q_r-(q_r)_o$ $(r=1,\dots,n)$ and thereby he transforms (1) to the form

(3) $q_k - \sum_{j=1}^{n} b_{kj} p_j = \Phi_k(x,t,u_r,p_r,q_r),$

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On the Analytic Solution of the Problem of Goursat for a System of Partial Differential Equations SOV/39-46-3-3/5

where $b_{ki} = \sum_{j=1}^{n} \overline{b_{kj}}\ \overline{a_{ji}}$ and $\overline{a_{ik}}$ $(\overline{b_{ik}})$ denote the derivatives of F_i with respect to q_k (p_k) in the point $(0,0,\dots,0,(p_1)_o,\dots(q_n)_o)$. Let further $\lambda_1,\dots \lambda_n$ be the roots of the equation

(4) $\det(\|b_{ij}\| - \lambda E) = 0.$

Let $S = \|s_{ij}\|$ be a nondegenerated matrix so that $S^{-1}\|b_{ij}\| S = \Lambda$ and Λ has the diagonal form

$$\Lambda = \begin{Vmatrix} \lambda_1 \dots 0 \\ \cdot\ \cdot\ \cdot\ \cdot \\ 0 \dots \lambda_n \end{Vmatrix}.$$

Let $\lambda_{ri} = \mu_r + \lambda_i$.

Theorem: If (3) is hyperbolic according to I.G.Petrovskiy and if the ϕ_k depend only on x and t, then for the unique solvability of the problem (3),(2) in the class of analytic functions it is necessary and sufficient that

$$\det \|s_{ri}\ \lambda_{ri}^{(m)}\| \neq 0 \qquad (m=0,1,\dots,m_o, m_o \geqslant 1).$$

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For especially defined "regular" problems (1)-(2) it is shown that in the hyperbolic case there exists a unique analytic solution then and only then if the point $\{\mu_i\}$ lies on none of the algebraic surfaces $\det \| s_{ri} \lambda_{ri}^{(m)} \| = 0$, where m_o depends only on b_{ij} and μ_i.

Two further theorems treat similar problems of Goursat, e.g. the equation

$$(5) \qquad \frac{\partial u_i}{\partial t} = \sum_{j=1}^{n} b_{ij} \frac{\partial u_i}{\partial x}$$

is solved under the condition (2). Let M be the set of the space $\{b_{ij},\ i,j=1,\dots,n\}$ on which $\sum_{i=1}^{n} |Jm\, \lambda_i| > 0$. If (4) has a complex root, then for a set dense in M and for almost all $\mu(\mu_1,\dots,\mu_n)$ there exists no analytic solution of the problem (5)-(2). At the other hand: For a certain set of the

On the Analytic Solution of the Problem of Goursat for a System of Partial Differential Equations SOV/39-46-3-3/5

b_{ij} dense in M there exists a dense set of the μ of measure zero for which the problem has an analytic solution. There are 5 references, 3 of which are Soviet, and 2 French.

SUBMITTED: April 22, 1957

Card 4/4

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16(1)

AUTHOR: Mikhaylov, V.P. SOV/20-126-6-12/67

TITLE: A Mixed Problem for a Parabolic System on a Plane

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 6, pp 1199 - 1202 (USSR)

ABSTRACT: The author considers the mixed problem

(1) $L(x,t,\frac{\partial}{\partial t},\frac{\partial}{\partial x})u = (\frac{\partial}{\partial t} - A(x,t,\frac{\partial}{\partial x}))u = f(x,t)$

(2) $u\Big|_{t=o} = \varphi(x)$, $\frac{\partial^i u}{\partial x^i}\Big|_{x=o} = \chi_i(t)$, $\frac{\partial^i u}{\partial x^i}\Big|_{x=1} = \psi_i(t)$, $i=0,\ldots,p-1$

Here it is $u(x,t) = (u_1(x,t),\ldots,u_N(x,t))$; $f(x,t) =$

$= (f_1(x,t),\ldots, f_N(x,t))$, $A(x,t,\frac{\partial}{\partial x}) = \sum\limits_{k=o}^{2p} A_k(x,t)\frac{\partial^{2p-k}}{\partial x^{2p-k}}$;

$A_k(x,t)$, $k = 0,\ldots, 2p$ quadratic matrices of order N with

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A Mixed Problem for a Parabolic System on a Plane SOV/20-126-6-12/67

sufficiently smooth elements. Furthermore it is supposed that for real α it holds $\mathrm{Re}\,\lambda < -\delta\alpha^{2p}$, $\delta > 0$, where λ are the roots of the equation

$$\det \| A_0(x,t)\,(i\alpha)^{2p} - \lambda E \| = 0 .$$

Theorem : If the elements of the $A_k(x,t)$, $k = 0,\dots, 2p$ possess continuous derivatives up to the order $2p$ in $D_T = (0 \leqslant x \leqslant 1,\ 0 \leqslant t \leqslant T)$, then the problem (1) - (2) is correctly formulated in D_T.

For the proof the author uses among others a method of Ye.Ye. Levi. - There are 3 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova (Moscow State University imeni M.V. Lomonosov)

PRESENTED: January 2, 1959, by I.G. Petrovskiy, Academician

SUBMITTED: December 29, 1958

Card 2/2

16.3500 S/020/60/132/02/13/067

AUTHOR: Mikhaylov, V. P.

TITLE: Solution of the Mixed Problem for a Parabolic System by Means of Potentials

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 2, pp. 291-294

TEXT: Let the parabolic system according to Petrovskiy

(1) $L_0\left(\frac{\partial}{\partial t}, \frac{\partial}{\partial x}\right)u = \left(\frac{\partial}{\partial t} - A_0\left(\frac{\partial}{\partial x}\right)\right)u = f(x,t)$

be given, where $x = (x_1,\dots,x_n)$, $u(x_1t) = (u_1(x,t),\dots, u_N(x_1t))$, $f(x_1t) = (f_1,\dots,f_N)$, $A_0 = \sum_{k_1+\dots+k_n=2p} A_{k_1\dots k_n} \frac{\partial^{2p}}{\partial x_1^{k_1}\dots\partial x_n^{k_n}}$

The author investigates the solution of the mixed problem for (1) which satisfies the conditions

(4) $u(x,t)\big|_{t=0} = (x)$

(5) $\frac{\partial^i u(x,t)}{\partial n^i}\Big|_\Gamma = \psi_i(\Gamma)$ $i = 0,\dots, p-1$

where n is the direction of the internal normal of the surface Γ.

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S/020/60/132/02/13/067

Solution of the Mixed Problem for a Parabolic System by Means of Potentials

Theorem: If the normal to Γ is nowhere parallel with the t-axis, if the boundary of Γ satisfies the Lyapunov conditions, and if there exists a fundamental solution of (1) (see (Ref.2)), then the Green matrix G of the problem (1), (4), (5) exists.
There are 9 references: 8 Soviet and 1 Polish.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

PRESENTED: January 12, 1960, by J. G. Petrovskiy, Academician

SUBMITTED: January 11, 1960

Card 2/2

MIKHAYLOV, V.P.

Graphic analysis method for transforming a complex drawing.
Trudy NPI 123:5-17 '61. (MIRA 16:2)
(Geometry, Descriptive)

MIKHAYLOV, V.P.

Determining the natural magnitude of the angle of inclination of a straight line and a plane to the planes of projections. Trudy NPI 123:18-26 '61. (MIRA 16:2)
(Geometry, Descriptive)

16.0100

S/020/62/143/001/007/030
B112/B102

AUTHOR: Mikhaylov, V. P.

TITLE: Continuation of functions

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 1, 1962, 42 - 45

TEXT: The following theorem is demonstrated: Let be $u(x,y) \in W^{(m,n)}_{(x,y),2}(Q)$, $u|_{\Gamma} = D_x u|_{\Gamma} = \ldots = D_x^{[m]-1} u|_{\Gamma} = 0$, where Γ is a sufficiently smooth contour of the region Q. If in the neighborhoods of the points $\Lambda = (x_\Lambda, y_\Lambda)$ and $\Pi = (x_\Pi, y_\Pi)$ $(x_\Lambda = \inf\{x, (x,y) \in \Gamma\}$, $x_\Pi = \sup\{x, (x,y) \in \Gamma\})$, the equation of Γ can be represented in the form $x - x_\Lambda = O(|y - y_\Lambda|^{n/m})$, $x_\Pi - x = O(|y - y_\Pi|^{n/m})$, respectively, then there is a function $u^*(x,y)$ which is such a continuation of the function $u(x,y)$ across the entire plane R that

$$\|u^*\|_{W^{(m,n)}_{(x,y),2}(R)} \leqslant C\|u\|_{W^{(m,n)}_{(x,y),2}(Q)},$$

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Continuation of functions

S/020/62/143/001/007/030
B112/B102

where C is a constant depending only on the region Q. There are 8 references: 7 Soviet and 1 non-Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

PRESENTED: October 28, 1961, by I. G. Petrovskiy, Academician

SUBMITTED: October 26, 1961

JA

Card 2/2

MIKHAYLOV, V.P.

Riss' bases in $\mathcal{L}_2(0, 1)$. Dokl. AN SSSR 144 no.5:981-984
Je '62. (MIRA 15:6)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
Predstavleno akademikom I.G.Petrovskim.
(Sequences (Mathematics))

16.2500

S/020/62/147/003/006/027
B112/B186

AUTHOR: Mikhaylov, V. P.

TITLE: A boundary value problem

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 147, no. 3, 1962, 548 - 551

TEXT: The boundary value problem

$$L(u) \equiv (-1)^{[s/2]+1} \frac{\partial^s u}{\partial t^s} + (-1)^{m+1} \sum_{|l|=|j|=m} D^l A^{lj}(x, t) D^j u + B(u) = f(x, t), \quad (1)$$

$$B(u) = \sum_{|l|/2m+s_1/s<1} B^{(l,s_1)}(x, t) \frac{\partial^{s_1}}{\partial t^{s_1}} D^l u, \quad (2)$$

$$\left.\frac{\partial^r u}{\partial n^r_{(x,t)}}\right|_\Gamma = \varphi_r(x, t), \quad 0 \leqslant r \leqslant m-1; \quad (4)$$

$$\left.\frac{\partial^r u}{\partial t^r}\right|_{t=0} = \psi_r(x); \quad 0 \leqslant r \leqslant k, \quad \text{если } s = 2k+1; \quad (5)$$

$$0 \leqslant r \leqslant k-1, \text{ если } s = 2k;$$

$$\left.\frac{\partial^r u}{\partial t^r}\right|_{t=T} = \chi_r(x), \quad 0 \leqslant r \leqslant k-1, \quad (6)$$

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S/020/62/147/003/006/027
B112/B186

A boundary value problem

is considered. Apriori estimates of the solutions are derived and classes of unambiguous solutions are determined.

PRESENTED: May 29, 1962, by I. G. Petrovskiy, Academician

SUBMITTED: May 22, 1962

Card 2/2

L 16962-63 EWT(d)/FCC(w)/BDS AFFTC/IJP(C)
S/020/63/149/006/002/027

53
52

AUTHOR: Mikhaylov, V.P.

[redacted]

TITLE: The first boundary-value problem for certain semibounded hypoelliptic differential operators 16

PERIODICAL: Akademiya nauk SSSR. Doklady. vol. 149, no.6, 1257-1260.

TEXT: Consider the differential equation

$$L(u) \equiv \sum_{|\alpha|=1} A^{(\alpha)}(x) D^\alpha u + \sum_{|\alpha|<1} A^{(\alpha)}(x) D^\alpha u \equiv L_0(u) + L_1(u) = f. \qquad (1)$$

in a bounded domain Q in an n-dimensional space $x=(x_1,\dots x_n)$, where equation (1) is of order $2m_1$ in x_1, $2m_2$ in $x_2,\dots$, $2m_n$ in x_n for given integral $m_1,\dots m_n$, $m_i>0$ and functions $A^{\alpha}(x)$ have bounded derivatives up to order $\left[\frac{\alpha_1+\dots+\alpha_n}{2}\right]$ in $\bar{Q}$. Also, assume that

$$\inf_{x\in\bar{Q}} \operatorname{Re} \sum_{|\alpha|=1} A^{(\alpha)}(x)(i\xi)^\alpha > \theta^2(\xi_1^{2m_1}+\dots+\xi_n^{2m_n}), \quad \theta>0 \qquad (2)$$

where $(i\xi)^\alpha = (i\xi)^{\alpha_1}\dots(i\xi_n)^{\alpha_n}$. The author discusses the problem of finding

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L 16962-63

S/020/63/149/006/002/027

The first boundary-value problem...

a solution to equation (1) in domain Ω that will satisfy (in the usual sense) the boundary conditions

$$u|_\Gamma = \ldots = D_x^{m-1}u|_\Gamma = 0, \qquad (3)$$

where $m = \max_i (m_i)$ and Γ is the boundary of domain Ω.

It is proved that problem (1),(3) is regularly solvable for $f \in W^{(m)}(\Omega)$ in $W^{(m)}(\Omega)$, where $W^{(m)}(\Omega)$ is the Sobolev space $\overset{\circ}{W}{}^{(m)}_{x,2}$ obtained by completion of $C_0^\infty(\bar{\Omega})$ in the metric of $W^{(m)}_{x,2}(\Omega)$. A second problem of similar form is also discussed, and it is noted that the results of both sections of the discussion may be extended to certain nonhypoelliptic equations.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova (Moscow State University im. M.V. Lomonosov)

SUBMITTED: November 2, 1962

Card 2/2

L 19745-63 EWT(d)/FCC(w)/BDS AFFTC/IJP(C)

ACCESSION NR: AP3001447 S/0039/63/061/001/0040/0064

8B

AUTHOR: Mikhaylov, V.P. (Moscow)

TITLE: The Dirichlet problem for a parabolic equation I

SOURCE: Matematicheskiy sbornik, v. 61, no. 1, 1963, 40-64

16

TOPIC TAGS: partial differential equation, Dirichlet condition, parabolic equation, existence, uniqueness

ABSTRACT: In the bounded region Q of the (x,t) plane, the author considers the linear equation

$$u_t + P(x,t,D)u = f(x,t), \qquad (1)$$

where

$$D = \frac{\partial}{\partial x};$$

$$P(x,t,D) \equiv a_0(x,t)D^{2p} + \sum_{s=0}^{2p-1} a_{2p-s}(x,t)D^s \equiv P_0 + P_1 \qquad (2)$$

(P_0 is an operator of 2p-th order, P_1 is an operator consisting of terms which have order less than 2p). f(x,t) is a given function which is square integrable

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ACCESSION NR: AP3001447

on the region Q. Assume that

$$\inf_Q |a_0(x,t)| = a_0 \neq 0. \qquad (3)$$

Condition (3) signifies that the given equation is either parabolic (if sign $a_0(x,t) = (-1)^p$) or inverse-parabolic (if sign $a_0(x,t) = (-1)^{p+1}$). Γ is the boundary of Q. Let Γ be a sufficiently smooth connected curve. The author wants to find in Q a solution u(x,t) satisfying on Γ the simplest homogeneous condition (Dirichlet condition)

$$u|_\Gamma = Du|_\Gamma = \ldots = D^{p-1}u|_\Gamma = 0. \qquad (4)$$

He gives sufficient conditions on the structure of the boundary so that problem (1), (4) (Dirichlet problem) is correctly solvable.

$$W\left\{{s,k \atop t,x}\right\}(Q) \ldots$$

is a space of functions u(x,t) with generalized derivatives (see S. L. Sobolev, Nekotory*e primeneniya funktsional'nogo analiza v matematicheskoy fiziki,

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ACCESSION NR: AP3001447

Leningrad, Izd. LGU, 1950) in x up to order k and in t up to order s which are square integrable in Q. For the norm in the space

$$W^{(s,k)}_{(t,x)}(Q)$$

the author takes

$$\|u\|^2_{W^{(s,k)}_{(t,x)}(Q)} = \iint_Q \left[u^2 + \left(\frac{\partial^k u}{\partial x^k}\right)^2 + \left(\frac{\partial^s u}{\partial t^s}\right)^2\right] dx\,dt, \quad (5)$$

associated with the obvious inner product. The Hilbert space consisting of the set of functions, finite valued and infinitely differentiable in Q, with the above norm is denoted by

$$\overset{0}{W}{}^{(s,k)}_{(t,x)}(Q).$$

He defines

$$H(Q) = \overset{0}{W}{}^{(s,k)}_{(t,x)}(Q) \cap W^{(1,2k)}_{(t,x)}(Q), \quad (6)$$

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and

$$\|u\|_Q^2 = \|u\|_{L_2(Q)}^2 = \iint_Q u^2 dx dt. \quad (7)$$

He reduces consideration to

$$L_0(u) \equiv u_t + (-1)^p D^p (a(x, t) D^p u) = f(x, t) \quad (8)$$

subject to

$$u|_\Gamma = Du|_\Gamma = \ldots = D^{p-1} u|_\Gamma = 0 \quad (9)$$

He proves the following theorems.

Theorem 1. If $\inf |a(x,t)| = a_0 \neq 0$ and $|a(x,t)| \leq M$ in Q, then there exists a generalized solution $u(x,t) \in W^{\{0,p\}}_{\{t,x\}}(Q)$ of (8)-(9). The upper part $\tilde{\Gamma}$ of the boundary Γ means the set of points $(x_0, t_0) \in \tilde{\Gamma}$ which have the property: $(x_0, t_0) \in \tilde{\Gamma}$ if there is $\delta(x_0, t_0) > 0$ such that all points (x_0, t) for $t \in [t_0 - \delta(x_0, t_0),$

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ACCESSION NR: AP3001447

t_0] belong to Q. $\tilde{\Gamma}$, the lower part, is defined analogously. The author assumes that the smooth boundary Γ of Q has the following properties (K_s): 1. Γ has only a finite number of points $A_i(t_i, x_i)$, $i = 1, 2, \ldots, N$ at which the tangent to Γ is horizontal. The order of tangency of Γ with its tangent at each point A_i is such that the equation of Γ in a sufficiently small neighborhood U_i of A_i has the form

$$|x - x_i| = |t - t_i|^{\frac{1}{s}} \psi_i(t - t_i), \quad i = 1, \ldots, N, \tag{10}$$

where $\psi_i(t)$ is a smooth function in $[U_i \cap (x = x_i)] \setminus (t = t_i)$, $\lim_{t \to 0} \psi_i(t) = 0$, $\lim_{t \to 0} \psi_i'(t) = 0$.

2. Each straight line t = const intersects the curve Γ at only two points.

Theorem 2. If the function $a(x,t)$ has a continuous bounded derivative in t and continuous bounded derivatives in x up to order p in the region, Q, $f(x,t) \in L_2(Q)$, and Γ and $\tilde{\Gamma}$ satisfy condition K_{2p}, then the generalized solution of problem (8)-(9) belongs to H(Q) and is a solution almost everywhere in Q.

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Theorem 3. Under the assumptions of Theorem 2. the generalized solution of problem (8)-(9) is unique in H(Q), and the estimate

$$\|u\|^2_{H(Q)} < C\|f\|^2_{L_2(Q)}$$

holds. Orig. art. has: 73 formulas and 1 figure.

ASSOCIATION: none

SUBMITTED: 27Jul61 DATE ACQ: 05Jun63 ENCL: 00

SUB CODE: MM NO REF SOV: 008 OTHER: 005

Card 6/6

ACCESSION NR: AP4035358 S/0039/63/062/002/0140/0159

AUTHOR: Mikhaylov, V. P. (Moscow)

TITLE: Dirichlet problem for a parabolic equation. 2

SOURCE: Matematicheskiy sbornik, v. 62, no. 2, 1963, 140-159

TOPIC TAGS: Dirichlet problem, parabolic equation, existence, uniqueness

ABSTRACT: The author studies the parabolic equation

$$Lu \equiv u_t + (-1)^p \sum_{|i|=|j|=p} D^i A^{ij}(x,t) D^j u + T(u) = f(x,t), \tag{1}$$

where

$$T(u) = \sum_{|i|+|j| \le 2p-1} B^i(x,t) D^j u, \tag{2}$$

$x = (x_1,\ldots,x_n)$, $(x,t) \in Q$, Q is a region in the (x,t) space which is bounded by the closed, sufficiently smooth surface Γ, $f(x,t) \in L_2(Q)$; $A^{ij}(x,t) = A^{ji}(x,t)$, $B^i(x,t)$ are sufficiently smooth functions in $\bar{Q}$, $i = (i_1,\ldots,i_n)$

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ACCESSION NR: AP4035358

$$|l| = l_1 + \ldots + l_m, \quad D^l = \frac{\partial^{|l|}}{\partial x_1^{l_1} \ldots \partial x_n^{l_n}}$$

$$\sum \xi_1^{l_1} \ldots \xi_n^{l_n} A^{ll}(x,t) \xi_1^{l_1} \ldots \xi_n^{l_n} > \varepsilon > 0 \tag{3}$$

for $|\xi| = 1$, $(x,t) \in \bar{Q}$. The author is concerned with the problem of existence and uniqueness, in the region Q, of a solution $u(x,t)$ of equation (1) satisfying the following conditions on Γ:

$$u|_\Gamma = \varphi_0(x,t), \ldots, \left.\frac{\partial^{p-1} u}{\partial n_{x\tau}^{p-1}}\right|_\Gamma = \varphi_{p-1}(x,t), \tag{4}$$

where $n_{x\tau}$ is the normal to the section $\Gamma \cap (t = \tau)$ situated in the plane $t = \tau$ and $\varphi_0(x,t), \ldots, \varphi_{p-1}(x,t)$ are sufficiently smooth functions on Γ. This problem, as well as the corresponding two-dimensional problem, is the Dirichlet problem. All the assertions and proofs given in the paper are also suitable for the case of a strongly parabolic system instead of equation (1). Theorem 1: For any function $f(x,t) \in L_2(Q)$ in $W^{(1,2p)}$ there exists a unique solution of problem (1), (4). Theorem 2: For any function $f(x,t) \in L_2(Q)$ in $W^{(1,2p)}$ there exists a unique

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ACCESSION NR: AP4035358

solution of the equation

$$u_t - (-1)^p \sum D^i A^{ij}_{..}(x, t) D^j u + T(u) = f(x, t), \qquad (5)$$

which satisfies conditions (4). Orig. art. has: 80 formulas.

ASSOCIATION: none

SUBMITTED: 18Jun62 DATE ACQ: 30Oct63 ENCL: 00

SUB CODE: MA NO REF SOV: 011 OTHER: 006

Card 3/3

ACCESSION NR: AP4014375 S/0039/64/063/002/0238/0264

AUTHOR: Mikhaylov, V. P. (Moscow)

TITLE: First boundary value problem for one class of hypoelliptic equations

SOURCE: Matem. sbornik, v. 63, no. 2, 238-264

TOPIC TAGS: boundary value problem, hypoelliptic equation, differential equation, uniqueness, existence, boundary condition, condition of conjunction

ABSTRACT: The author considers the differential equation

$$(-1)^{\left[\frac{s}{2}\right]+1}\frac{\partial^s u}{\partial t^s}+(-1)^{m+1}\sum_{|l|=|j|=m} D^l A^{lj}(x,t)\,D^j u+B(u)=f, \quad (1)$$

$$B(u)=\sum_{\substack{\frac{|l|}{2m}+\frac{s_1}{s}<1\\ s_1\geq 0,\ |l|\geq 0}} B^{(l,s_1)}(x,t)\,\frac{\partial^{s_1}}{\partial t^{s_1}}D^l u, \quad (2)$$

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ACCESSION NR: AP4014375

where $s \geq 1$, $m \geq 1$ are integers, $x = (x_1, \ldots, x_n) \in \Omega_0$, Ω_0 is a region bounded by a sufficiently smooth closed surface Υ in the x space, $t \in [0,T]$, $(x,t) \in Q = \Omega_0 \times [0,T]$; $\Gamma = \Upsilon \times [0,T]$: $A^{ij}(x,t) = A^{ji}(x,t)$ and $B^{isl}(x,t)$ are sufficiently smooth functions in $\bar{Q}$ which are considered real for simplicity; $f \in L_2(Q)$, $i = (i_1, \ldots, i_n)$,

$$l = (l_1, \ldots, l_n), \ |l| = l_1 + \ldots + l_n, \ D^l = \frac{\partial^{|l|}}{\partial x_1^{l_1}, \ldots, \partial x_n^{l_n}},$$

$$\sum_{|i|=|l|=m} \xi_1^{i_1} \ldots \xi_n^{i_n} A^{il}(x, t) \xi_1^{l_1} \ldots \xi_n^{l_n} > \theta^2 > 0 \qquad (3)$$

for $|\xi| = 1$, $(x,t) \in \bar{Q}$. The author is concerned with the question of existence and uniqueness, in Q, of the solution for (1) under the boundary conditions

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ACCESSION NR: AP4014375

$$\left.\frac{\partial^r u}{\partial n^r_{(x,t)}}\right|_{(x,t)\in\Gamma} = \varphi_r(x,t), \quad r=0,\ldots,m-1; \qquad (4)$$

$$\left.\frac{\partial^r u}{\partial t^r}\right|_{t=0} = \psi_r(x), \quad 0<r<k \text{ for } s=2k+1, \ 0<r<k-1 \text{ for } s=2k; \quad (5)$$

$$\left.\frac{\partial^r u}{\partial t^r}\right|_{t=T} = \chi_r(x), \quad 0<r<k-1, \qquad (6)$$

where $n_{(x,t)}$ is the normal to Γ at the point (x,t),

$$\varphi_r(x,t)\in W_{2,2,s}^{\left(2m-r-\frac{1}{2}\right)\frac{s}{2m},\,2m-r-\frac{1}{2}}(\Gamma),\quad \psi_r(x)\in W_{2,2}^{2m\left(1-\frac{r}{s}-\frac{1}{2s}\right)}(\overline{Q}\cap t=0),$$

$$\chi_r(x)\in W_{2,2}^{2m\left(1-\frac{r}{s}-\frac{1}{2s}\right)}(\overline{Q}\cap t=T). \qquad (7)$$

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ACCESSION NR: AP4014375

He assumes that the boundary functions satisfy natural conditions of conjunction. If $s = 2k+1$ is not even, instead of problem (1), (4)-(6) one can consider the problem $(\tilde{1})$, $(\tilde{4})$, $(\tilde{5})$, $(\tilde{6})$, where $(\tilde{1})$ differs from (1) by the sign of $u_{t^s} = u_{t^{2k+1}}$, and conditions $(\tilde{5})$, $(\tilde{6})$ are obtained from (5), (6) if the latter are interchanged. Along with conditions (4) - (6) it is convenient to consider the homogeneous boundary conditions

$$u|_\Gamma = Du|_\Gamma = \dots = D^{m-1}u|_\Gamma = 0, \qquad (8)$$

$$u\big|_{\substack{t=0\\t=T}} = \dots = u_{t}^{\left[\frac{s}{2}\right]-1}\big|_{\substack{t=0\\t=T}} = 0, \qquad (9)$$

$$u_{t^k}\big|_{t=0} = 0, \text{ if } s = 2k+1. \qquad (10)$$

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ACCESSION NR: AP4014375

The author studies mostly the case of non-even s since this case is somewhat more complicated than the case of even s. Equation (1) for s = 1 is parabolic. Cattabriga (Potenziali di linea e di dominio per equazioni non paraboliche in due variabli a caracteristiche multiple, Rend. Semin. mat. Univ. Padova, 31 (1961), 1-45) studied the problem by the method of potentials for the equation $(-1)^{s+1} u_{t^{2s+1}} + u_{x^2} = f(x,t)$, and constructed fundamental solutions and potentials of the rectangular boundary; the boundary value problem is here reduced to a Fredholm system of integral equations. Instead of the one equation (1) one can consider a system of equations for the vector $\vec{u} = (u_1,\ldots,u_N)$

$$(-1)^{\left[\frac{s}{2}\right]+1} E\vec{u}_{t^s} - A(\vec{u}) + B(\vec{u}) = \vec{f}. \qquad (\bar{1}.)$$

where E is a unit matrix, $A(\vec{u})$ is the symmetric part of a strongly elliptical operator, in $B(\vec{u})$, besides the lowest terms there may also be a skew-symmetric

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ACCESSION NR: AP4014375

part of 2m-th order, if it is subject to symmetry in a certain manner. Here conditions (4) - (6) should be considered vector. All computations are the same for the vector case as for the scalar. The author proves single-valued solvability in Q of the equation $(-1)^{[\frac{s}{2}]+1} u_{t^s} - (-\Delta)^m u = f$ under conditions (4)-(6). This equation acts as a "test" equation; with the help of these results the author proves the Fredholm nature of the general problem (1), (4)-(6) by extension along the parameter. He proves existence and uniqueness of the generalized solution (the solution from $H_1(Q)$) of this problem. He then proves that the solution he has constructed has all derivatives occurring in the left part of the equation from $L_2(Q)$, i.e., it occurs in H(Q). He obtains an a priori estimate for (1) subject to (4)-(6). Such an estimate can also be obtained under more general boundary conditions. The a priori estimates are estimates of L_2-norms of the derivatives of the functions u(x,t) in (1) through the norm of the right part of f(x,t) in $L_2(Q)$ and through the norms of the right parts of (4)-(6) in the corresponding spaces. The "parametrix" method, analogous to that of S. Agmon, A. Douglis,

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ACCESSION NR: AP4014375

L. Nirenberg (Estimates near the boundary for elliptic partial, differential equations satisfying general boundary conditions, I, Comm. Pure Appl. Math., 12, No. 4 (1959), 623-727) makes it possible to estimate higher derivatives of u(x,t) in $L_2(Q)$ via the derivatives of f(x,t) and higher derivatives of boundary functions. The author proves the Fredholm nature and, under certain additional conditions, single-valued solvability of problem (1),(4)-(6). By solution is meant solution of equation (1) almost everywhere in Q, where every summand of the left part of (1) and the right part of f(x,t) belongs to the space $L_2(Q)$, the boundary conditions are taken in the mean. Infinite differentiability of the solutions constructed in Q and down to the boundary, with the possible exclusion of the manifold $(\Gamma \cap (t = 0)) \cup (\Gamma \cap (t = T))$ for infinite differentiability in Q of the coefficients of (1), the functions f(x,t) and the boundary functions in (4)-(6) follows quickly from work of Hörmander, since (1), as is easily seen, is hypoelliptic. Orig. art. has: 96 formulas.

ASSOCIATION: none

SUBMITTED: 18Jun62 DATE ACQ: 05Mar64 ENCL: 00

SUB CODE: MM NO REF SOV: 010 OTHER: 007

Card 7/7

MIKHAYLOV, V.P.

First boundary value problem for certain semibounded operators.
Dokl. AN SSSR 151 no.2:282-285 Jl '63. (MIRA 16:7)

1. Predstavleno akademikom I.G.Petrovskim.
(Boundary value problems) (Operators (Mathematics))

MIKHAYLOV, V.P., kand. tekhn. nauk, dots.; BOLKUNOV, A.A., st. prepodavatel', otv. red.; PCHELKIN, G.I., st. prepodavatel', red.; ZABLUDINA, A.A., assistent, red.

[Lectures on descriptive geometry] Lektsii po nachertatel'noi geometrii. Novocherkassk, Red.-izdatel'skii otdel NPI, 1964. 140 p. (MIRA 17:9)

1. Novocherkassk. Politekhnicheskiy institut. Kafedra nachertatel'noy geometrii i grafiki. 2. Kafedra nachertatel'noy geometrii i grafiki Novocherkasskogo politekhnicheskogo instituta (for Mikhaylov).

ACCESSION NR: AP4037550 S/0039/64/064/001/0010/0051

AUTHOR: Mikhaylov, V. P. (Moscow)

TITLE: First boundary value problem for certain semibounded hypoelliptic equations

SOURCE: Matematicheskiy sbornik, v. 64, no. 1, 1964, 10-51

TOPIC TAGS: boundary value problem, hypoelliptic equation, Dirichlet problem, Fredholm property, Hilbert space

ABSTRACT: The author studies the first boundary value problem for the two differential equations

$$\mathfrak{A}(u) = \sum_{(\alpha)=1} A^{\alpha}(x) D^{\alpha} u + \sum_{(\alpha)<1} A^{\alpha}(x) D^{\alpha} u = f, \qquad (1)$$

$$\mathfrak{B}(u) = \sum_{[\alpha]=1} B^{\alpha}(x) D^{\alpha} u + \sum_{[\alpha]<1} B^{\alpha}(x) D^{\alpha} u = f, \qquad (2)$$

where $x = (x_0, x_1, \ldots, x_n) \in Q$, Q is some region of $(n+1)$-dimensional space, $\alpha = (\alpha_0, \alpha_1, \ldots, \alpha_n)$ is an integral vector,

$$(\alpha) = \frac{\alpha_0}{2m_0+1} + \frac{\alpha_1}{2m_1} + \cdots + \frac{\alpha_n}{2m_n}, \quad [\alpha] = \frac{\alpha_0}{2m_0} + \frac{\alpha_1}{2m_1} + \cdots + \frac{\alpha_n}{2m_n}. \qquad (3)$$

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ACCESSION NR: AP4037550

$D^\alpha = D_0^{\alpha_0} \dots D_n^{\alpha_n}$, $D_i = \frac{\partial}{\partial x_i}$, m_i are integers, $i = 0,1,\dots,n$; $A^\alpha(x)$ and $B^\alpha(x)$ are sufficiently smooth real functions in the region $\bar{Q}$ for which

$$\mathrm{Re} \sum_{(\alpha)=1} A^\alpha(x)(i\xi)^\alpha > \theta^2(\xi_1^{2m_1} + \dots + \xi_n^{2m_n}), \qquad (4)$$

$$\mathrm{Re} \sum_{(\alpha)=1} B^\alpha(x)(i\xi)^\alpha > \theta^2(\xi_0^{2m_0} + \xi_1^{2m_1} + \dots + \xi_n^{2m_n}), \qquad (5)$$

where $\xi = (\xi_0, \xi_1, \dots, \xi_n)$ is an arbitrary real vector, $\theta > 0$, $A^{(2m_0+1,0,\dots,0)}(x) \neq 0$ in $\bar{Q}$, and other conditions. Theorem 1: For sufficiently large $\lambda > 0$ in $H(Q)$ (the completion of a Hilbert space already defined) there exists a generalized solution of the problem

$$\mathfrak{A}(u) + \lambda u \equiv \sum_{\substack{(\alpha)=1 \\ |\alpha| - \text{even}}} A^\alpha(x) D^\alpha u + \sum_{\substack{(\alpha)=1 \\ |\alpha| - \text{odd}}} A^\alpha(x) D^\alpha u + \sum_{(\alpha)<1} A^\alpha(x) D^\alpha u + \lambda u \equiv \mathfrak{A}_1(u) + \mathfrak{A}_2(u) + \mathfrak{A}_3(u) + \lambda u = f. \qquad (6)$$

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$$u|_{\widetilde{\Gamma}} = \cdots = \nabla^{m-1} u|_{\widetilde{\Gamma}} = 0, \qquad (7)$$

$$u|_{\Gamma_l} = \cdots = D_l^{m_l - 1} u|_{\Gamma_l} = 0, \quad l = 1, \ldots, n, \qquad (8)$$

The author proves a uniqueness theorem for a special case, and Theorem 2: If in (6), f = 0, λ is a sufficiently large positive number and u is a generalized solution from H(Q) of problem (6), (7), (8), then u ≡ 0. He proves theorems concerning the Fredholm property, i.e., proves the existence of a bounded inverse operator and obtains an estimate for the norm of this operator. He gives an existence-uniqueness theorem and another Fredholm theorem when the equation has countable orders in all variables. He also applies the concepts of fractional derivative and integral to the problem for several cases. Orig. art. has: 123 formulas.

ASSOCIATION: none

SUBMITTED: 26Dec62 DATE ACQ: 09Jun64 ENCL: 00

SUB CODE: MA NO REF SOV: 014 OTHER: 006

Card 3/3

VEYTSMAN, P.G.; MIKHAYLOV, V.P.

Automatic proportioning unit of components for an edge-runner mill. Avtom. i prib. no. 1:9-11 Ja-Mr '64. (MIRA 17:5)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001034020014-6"

MIKHAYLOV, V.P.

Asymptotic behavior of the solutions to certain nonstationary boundary value problems at $t \to \infty$. Dokl. AN SSSR 162 no.3:506-509 My '65. (MIRA 18:5)

1. Matematicheskiy institut im. V.A.Steklova AN SSSR. Submitted December 4, 1964.

MIKHAYLOV, V.P., kand. tekhn. nauk; STRAUSMAN, R.Ya., inzh.

Caving of rock overworked-out areas with the help of column charges. Gor. zhur. no.6:72-73 Je '65. (MIRA 18:7)

1. Kombinat Baleyzoloto (for Mikhaylov). 2. Proizvodstvenno-eksperimental'noye upravleniye tresta Soyuzvzryvprom (for Strausman).

MIKHAYLOV, V.R.; SAVINA, Z.A., vedushchiy red.; POLOSINA, A.S., tekhn.red.

[Driller of oil and gas wells] Buril'shchik neftianykh i gazovykh skvazhin. Moskva, Gos.nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry, 1951. 370 p. (MIRA 12:10)
(Oil well drilling)

MIKHAYLOV, V.R.; SAFAROV, Yu.A., redaktor; GONCHAROV, I.A., tekhnicheskiy redaktor.

[Graphic method of calculating tubing strings] Graficheskii metod rascheta ekspluatatsionnykh kolonn. Baku, Gos.nauchno-tekhn.izd-vo neftianoi i gorno-toplivnoi lit-ry, 1954. 39 p. (MIRA 8:4)
(Petroleum engineering--Graphic methods)

MIKHAYLOV, V.R.; BABALYAN, N.A.; NYGENSON, A.

Base construction of drill casing. Neft.khoz.33 [i.e.34] no.9:15-17
S '56. (MLRA 9:10)
(Oil well drilling--Equipment and supplies)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001034020014-6"

MIKHAYLOV, Vagram Rafailovich; BUYANOVSKIY, N.I., red.; PETROVA, Ye.A., vedushchiy red.; FEDOTOVA, I.G., tekhn.red.

[Oil and gas well driller] Buril'shchik neftianykh i gazovykh skvazhin. Izd. 3., ispr. i dop. Moskva, Gos. nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, 1959. 458 p. (MIRA 12:2)
(Gas wells) (Oil well drilling)

TER-GRIGOR'YAN, A.I., inzh.; AVETISYAN, A.A., inzh.; GASAN-DZHALALOV, A.B., inzh.; GUKHMAN, M.I., inzh. [deceased]; DAVTYAN, S.Kh., inzh.; DADASHEV, B.B., kand.tekhn.nauk [deceased]; DANIYELYANTS, A.A., inzh.; DEDUSENKO, G.Ya., kand.tekhn.nauk; IOANESYAN, R.A., inzh.; KARASIK, ?.Ye., inzh.; KULIYEV, I.P., kand.tekhn.nauk; KULI-ZADE, K.N., kand.tekhn.nauk; LANGLEBEN, M.L., kand.tekhn. nauk; MAIDERA, R.S., inzh.[deceased]; MIKHAYLOV, V.R., inzh.; MURADOV, I.M., inzh.; POLYAKOV, Z.D., inzh.; PROTASOV, G.N., kand. tekhn.nauk; SAROYAN, A.Ye., kand.tekhn.nauk; SEID-RZA, M.K., kand. tekhn.nauk; TARANKOV, V.V., inzh.; FRIDMAN, M.Ye., inzh.; SHNEYDEROV, M.R., kand.tekhn.nauk; YAISHNIKOVA, Ye.A., kand.tekhn.nauk; SHTEYN-GEL', A.S., red.izd-va

[Driller's handbook] Spravochnik burovogo mastera. Izd.2., ispr. i dop. Baku, Azerbaidzhanskoe gos.izd-vo neft.i nauchno-tekhn.lit-ry, 1960. 783 p. (MIRA 13:5)

(Oil well drilling)

OROBCHENKO, Ye.V.; PRYANISHNIKOVA, N.Yu.; MIKHAYLOV, V.S.

Studying the possibility of substituting other substances for fats in the synthesis of modified alkyd resins. Report No.1: Synthesis of glyphtalic resins modified with vat residues of synthetic fatty acids and tall oil. Lakokras.mat.i ikh prin. no.3:48-49 '62. (MIRA 15:7)

1. Nauchno-issledovatel'skiy institut plastmass Ukrainskoy SSR i Kiyevskiy lakokrasochnyy zavod.
(Alkyd resins) (Acids, Fatty)

MIKHAYLOV, V. S., Cand Tech Sci -- (diss) "Research into angular and transverse deformations in butt- and tee-welded assemblies." /Leningrad/, 1960. 14 pp; with graphs; (Ministry of Higher Education USSR, Leningrad Ship-Building Inst); number of copies not given; free; (KL, 22-60, 137)

KAYBICHEVA, M. N.; FADEYEVA, N. I.; Prinimali uchastiye: KOSOLAPOV, Ye. F.; GILEV, Yu. P.; DRESVYANKIN, V. I.; MIKHAYLOV, V. S.

Studying conditions of service and the character of roof failure in electric steel smelting furnaces. Trudy Vost. inst. ogneup. no.2:101-117 '60. (MIRA 16:1)

(Electric furnaces—Maintenance and repair)
(Refractory materials—Testing)

3(4)

AUTHORS: Nazarov, V. M., Candidate of Technical Sciences, Prilepin, M. T., Candidate of Technical Sciences, Genike, A. A., Mikhaylov, V. S. SOV/6-58-11-2/15

TITLE: Results of Field Tests of the Test Model of the Large Optical Range Meter of the TsNIIGAiK (Rezul'taty polevykh ispytaniy opytnogo obraztsa Bol'shogo svetodal'nomera TsNIIGAiK)

PERIODICAL: Geodeziya i kartografiya, 1958, Nr 11, pp 12-15 (USSR)

ABSTRACT: The results of tentative tests of this range meter carried out in 1956 were published in Geodeziya i kartografiya. In 1957 the design of the range meter was somewhat modified and it was subsequently tested on the base net. The block scheme of the range meter is given here. A quartz generator produces high-frequency oscillations (10 Mcy.) which are mixed with the oscillations from the second generator. The resulting high-frequency oscillations are applied to a Kerr-cell after being multiplied and amplified. These oscillations are used as supporting oscillations for the phase-detecting. Two frequency measuring methods were tested: One according to the calibrated scale of the generator (using calibration points), the other with a conversion device. The second

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Results of Field Tests of the Test Model of the Large SOV/6-58-11-2/15
Optical Range Meter of the TsNIIGAiK

method was preferred, as it proved to be more simple, convenient, exact, and faster. The test runs were carried out in the Odesskaya oblast' on the Sarata base net from September 9 to November 1, 1957. From the results presented in this paper it is to be seen that this optical range meter of the TsNIIGAiK complies with the requirements placed upon big range meters. At present the design is somewhat altered and the principal electronic scheme is improved. It is intended to reduce the weight and the size of the device. There are 2 figures, 2 tables, and 1 Soviet reference.

Card 2/2

3(4)

AUTHORS: Larin, B. A., Candidate of Technical Sciences, Nazarov, V. M., Candidate of Technical Sciences, Genike, A. A., Mikhaylov, V. S., Fel'dman, G. A. SOV/6-59-10-1/21

TITLE: A Large Optical Range Finder of the Central Scientific Research Institute of Geodesy, Aerial Surveying, and Cartography

PERIODICAL: Geodeziya i kartografiya, 1959, Nr 10, pp 3-11 (USSR)

ABSTRACT: At the end of 1958, the TsNIIGAiK (Central Scientific Research Institute of Geodesy, Aerial Surveying, and Cartography) constructed a test model of a large optical range finder which is intended for the measurement of distances of up to 25 km with a relative error of 1 : 350,000. A scheme of alternating modulation frequency of light was used for the test model. Further, two narrow frequency ranges with 30 megacycles each were used, which were distant from each other by 800 megacycles approximately. This scheme permits reliable frequency measurement and precise determination of distances over 6-30 km. The block diagram of the instrument is shown in figure 1, the instrument itself in figures 2 and 3. Its mode of operation and design

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A Large Optical Range Finder of the Central Scientific Research Institute of Geodesy, Aerial Surveying, and Cartography SOV/6-59-10-1/21

are then illustrated. Preliminary work and the course of measurement on this instrument are described. The model was tested in the open air near Moscow in March 1959 and near Kirzhak town (Vladimir oblast') in May and June, 1959. The results obtained are tabulated. Herefrom it follows that the differences arising from the distances measured do not exceed the root mean square error of the sides measured by the method of triangulation. Tests have shown that the large optical range finder guarantees great accuracy in linear surveying. It is recommended to use the instrument for measuring the line of departure in triangulation and for measuring the sides of polygonal traverses that are laid instead of the triangulation of first order. There are 4 figures and 4 tables.

Card 2/2

MIKHAYLOV, V. A.

AUTHORS: Larin, B. A., Candidate of Technical Sciences, Nazarov, V. M., Candidate of Technical Sciences, Prilepin, M. T., Candidate of Technical Sciences, Entin, I. I., Candidate of Technical Sciences, Genike, A. A., Lozanov, P. Ye., Mikhaylov, V. A., Shevelev, A. P.

S/006/60/000/04/018/019
B007/B005

TITLE: On the Book by A. V. Kondrashkov, "Electrooptical Range Finders"

PERIODICAL: Geodeziya i kartografiya, 1960, Nr 4, pp 73-76 (USSR)

TEXT: This is a review of the book by A. V. Kondrashkov (Ref, Footnote on p 73) published in 1959. It is thoroughly discussed as far as it first tries to generalize and systematize the data required for optical range finders. The book consists of two parts. The first part (60% of the volume) gives data from physics, radio engineering, electrical engineering, and electronics. The second part deals with problems directly connected with optical range finders. The incoherent data of varying level on the fields mentioned in the first part are too extensive and inconvenient. The division and mode of representation of these chapters is also a failure. The theory of optical range finders is not well explained. Several concrete mistakes of the book are pointed out. The great number of such mistakes

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reduces the value of the book considerably. It is regretted that the editor of the book Yu. V. Popov paid his principal attention to the title, not to the contents of the book, as can be seen from the introduction. There is 1 Soviet reference.

Card 2/2

NAZAROV, V.M.; MIKHAYLOV, V.S.; LAZANOV, P.Ye.

Large EOD-1 geodimeter. Geod.i kart. no.4:8-16 Ap '62. (MIRA 15:12)

(Geodimeter--Testing)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001034020014-6"

MIKHAYLOV, V.S., kand.tekhn.nauk

Contactless measurement of the propeller thrust. Sudostroenie 31 no.4:30-33 Ap '65. (MIRA 18:8)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001034020014-6"

MIKHAYLOV, V.S., inzh.; ABRAMOV, A.I., inzh.

Determination of critical thermal currents during the boiling of monoisopropylbiphenyl in a pipe. Izv. vys. ucheb. zav.; energ. 7 no.7:108-110 Jl '64 (MIRA 17:8)

1. Moskovskiy ordena Lenina energeticheskiy institut.

AUTHOR: Mikhaylov, V. S. 108-12-1/10

TITLE: Some Questions Relating to the Theory of High Frequency Generators With Tetrodes (Nekotoryye voprosy teorii tetrodnykh generatorov sverkhvysokikh chastot).

PERIODICAL: Radiotekhnika, 1957, Vol. 12, Nr 12, pp. 3-9 (USSR)

ABSTRACT: Reference is made to the works by M. S. Neyman (Ref. 1 and 2) and N. I. Ivanov (Ref. 3), and formulae are derived. With the aid of these formulae it is possible to compute the degree of efficiency of a high frequency generator with tetrodes in the case of power amplification and frequency multiplication with comparative ease. In the investigation of the electron phenomena in the domain screen-grid - anode the same assumptions are made as in the case of previous works. The equation (7) for the equation in the domain screen-grid - anode is derived as well as that for the degree of efficacy of the single electron (8). On the basis of these two equations (7) and (8) the diagrams for the dependence of the coefficient of electron energy utilization on the span width phase utilization upon the width of span phase of the screen-grid plane η_{electron}

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($\omega\tau$) are drawn. These dependences correspond to the different values of the parameters β_a (inertia parameters) and ξ (coefficient of anode voltage utilization). From the curves it may be seen that with an increase of β_a the width of span domain, which corresponds to the positive values of the degree of efficiency of the electrons, becomes smaller and shifts in the direction of the lead. It can also be seen that the positive maximum value of the maximum degree of electron efficiency $\eta_{\text{electron max.}}$ is also reduced (in this case). All this proves that with an increase of inertia phenomena within the domain screen-grid - anode, the electron efficiency of the tetrode generator decreases, whereas the alternating current voltage at the tube anode always lags behind the pulses of the convection current, i.e. also behind the alternating current voltage at the control grid. In the case of an increase of ξ. $\eta_{\text{electron max}}$ increases, whereas the width of span phase domain, which corresponds to the positive values of electron efficiency, becomes somewhat smaller. In the second chapter the formula for the degree of efficiency of the high frequency generator with tetrodes is derived. The formula proves the correctness of what has been previously assumed, viz. that with an increase of ξ in the domains $0 \leqslant \xi \leqslant 1$

electron efficiency is modified monotonously at least with $\beta_a < 33{,}45$. The equation for the efficiency of the generator is set up, taking account of the losses of the oscillation system at the output. If it is assumed that ξ changes only at the cost of a modification of a connection with load, and that the other parameters are constant, the total efficiency of the generator may be looked upon as a function of only some independent variables ξ.
The modes of operation investigated here are realized in a width of span klystron and in a high frequency generator with tetrodes with a lacking dynatron effect on the anode.
There are 6 figures, 1 table, and 5 references, all of which are Slavic.

Some Questions Relating to the Theory of High Frequency Generators With Tetrodes 108-12-1/10

SUBMITTED: December 14, 1956

AVAILABLE: Library of Congress

1. Generators-Mathematical analysis 2. Tetrodes

Card 4/4

9,3270

S/058/60/000/007/006/014
A005/A001

Translation from: Referativnyy zhurnal, Fizika, 1960, No. 7, p. 311, # 17883

AUTHOR: Mikhaylov, V. S.

TITLE: On the Theory of Amplitude Modulation Under Frequency Multiplication Conditions

PERIODICAL: Izv. Leningr. elektrotekhn. in-ta, 1959, No. 37, pp. 118-134

TEXT: Equations of the static modulation characteristics of frequency multipliers are derived, which are applicable to the amplitude modulation analysis. The families of modulation characteristics are compiled for a frequency doubler with grid-bias modulation, and a graph is presented of the dependence of the nonlinear distortion coefficient on the parameters. The case of drive modulation is considered analogously. In conclusion, the peculiarities of the frequency multipliers modulation with a common grid circuit are considered; their modulation characteristics are expressed for grid-bias- and anode modulation in the subvoltage operation mode by the same graphs as for multipliers with grounded cathode circuit.

G. M. Utkin

Translator's note: This is the full translation of the original Russian abstract.

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S/144/60/000/04/013/017
E194/E455

AUTHOR: Mikhaylov, V.S., Aspirant

TITLE: An Investigation of a Generator-Motor System with a Direct-Field Amplidyne as Generator

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1960, Nr 4, pp 96-101 (USSR)

ABSTRACT: The direct-field amplidyne, with its high reaction speed, high output and high amplification factor, offers advantages as a source of supply for various kinds of drives and in particular for driving a ship's towing winch. During towing, the wave motion on the ship may cause the towing tension to fall to zero or to become excessive if it is not properly controlled. It may be shown that the electrical drive of a towing winch best satisfies the requirements if the speed-torque curve on the shaft is of the form of an ellipse, as shown in Fig 1. Automatic control of such a drive must prevent excessive tension from being applied to the tow. A cross-field amplidyne cannot be used as generator in this case because the winch driving motor may have an output of hundreds of kilowatts. It is best to use a

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S/144/60/000/04/013/017
E194/E455

An Investigation of a Generator-Motor System with a Direct-Field Amplidyne as Generator

three-stage direct-field amplidyne. It is practically impossible to exceed three stages because of the complexity of the circuit. Fig 2 shows a circuit diagram which can give a speed-torque characteristic very near to the ideal. The main control winding is sufficient to develop rated voltage at the amplidyne output. The driving motor supplied by the amplidyne drives the winch through gears. An induction torque-measuring device between the final gear and the drum feeds into the second control winding of the amplidyne. Under these circumstances, the three-stage amplidyne may be represented by two aperiodic links and one integrating link; the assumptions involved in this statement are stated. The transmission function of the amplidyne becomes of the form of Eq (1). Derivation of the transmission function of the driving motor is explained and leads to Eq (6). These two expressions may then be combined to obtain Eq (7) for the transmission function of the system as a whole. The structural block

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An Investigation of a Generator-Motor System with a Direct-Field Amplidyne as Generator

circuit diagram corresponding to Eq (7) is given in Fig 3. The values quoted on this figure relate to a laboratory model of a winch drive. Numerical calculations for this model are given and a curve showing the region of stability is plotted in Fig 4. When all the parameters entering into the structural circuit had been determined, the system was investigated on a computer type IPT-5; a single disturbance was applied to investigate the transient process. An oscillogram of the system's response is shown in Fig 5 indicating that the transient process time is 1.15 seconds and the maximum overcontrol 28%. The system passes twice through the steady-state value. Such characteristics would be very satisfactory for driving a ship's towing winch. There are 5 figures and 4 references, 3 of which are Soviet and 1 English.

n.b. Ref 4 does not state the source correctly. "J.V.A." should read: I.V.A.Tidskrift for Teknisk-Vetenskaplig Forskning (Stockholm).

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S/144/60/000/04/013/017
E194/E455

An Investigation of a Generator-Motor System with a Direct-Field Amplidyne as Generator

ASSOCIATION: Leningradskiy elektrotekhnicheskiy institut (Leningrad Electro-Technical Institute)

SUBMITTED: January 4, 1959

Card 4/4

MIKHAYLOV, V.S., inzh.

Method of calculating the horsepower of an electric motor for the drive of an automatic tugboat winch. Sudostroenie 26 no.8:38-40 Ag '60. (MIRA 13:10)
(Towing) (Winches—Electric driving)

MIKHAYLOV, V. S., CAND TECH SCI, "INVESTIGATION OF THE SYSTEM OF AUTOMATIC CONTROL OF TOW LINE TENSION IN ELECTRICAL DRIVES OF ~~NAVAL~~ marine TOWING INSTALLATIONS." LENINGRAD, 1961. (LENINGRAD INST OF WATER TRANSPORT). (KL, 3-61, 218).

S/124/62/000/006/023/023
D234/D308

AUTHORS: Mikhaylov, V. S. and Solodovnikov, A. I.

TITLE: Use of magnetoelastic effect to measure the rotating moment and the detent of propeller shafts

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 6, 1962, 65-66, abstract 6V563 (Sudostroyeniye, 1961, no. 9, 40-43)

TEXT: Transmitters for measuring the torque and the detent of a shaft, described in the literature, have low sensitivity and besides do not allow separate measurement of torque and detent, since the two kinds of force affect considerably the readings of the transmitters. In the construction of the magnetoelastic transmitter proposed here the arms of an equivalent magnetic bridge formed by sections of the shaft are parallel to the main stresses, and the cores of the transmitters are situated at an angle of 90° in the form of the letter V. This allows nearly complete elimination of the detent during measurement of multisectional transmitters having high sensitivity, simple construction and making it possible

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Use of magnetoelastic ... S/124/62/000/006/023/023
D234/D308

to eliminate the effect of anisotropy of the material of the shaft and the vibrations of the latter. Numerous tests showed almost complete coincidence of the descending and the ascending branch of the curve of dependence of current intensity in the measuring device on the torque. The character of this curve does not change during many variations of load and reversals of the shaft. [Abstracter's note: Complete translation.]

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